

**What is claimed is:**

1. A method of identifying senile plaques, neurofibrillary tangles and neuropil threads in brain tissue comprising:

5 (a) contacting brain tissue with a fluorescent dye capable of intercalating selectively into nucleic acids; and

(b) detecting any fluorescence in the brain tissue indicative of senile plaques, neurofibrillary tangles and neuropil threads in the brain tissue.

10 2. A method of identifying RNAs in senile plaques, neurofibrillary tangles, and neuropil threads of brain tissue which encode proteins involved in the pathogenesis of Alzheimer's disease comprising:

(a) isolating single senile plaques in brain tissue by  
15 immunocytochemical techniques;

(b) identifying the presence of RNA by contacting said senile plaque with a fluorescent dye capable of intercalating selectively into nucleic acids;

(c) amplifying the identified RNA; and

20 (d) determining whether the amplified RNA product hybridizes to any known cDNAs for proteins involved in the pathogenesis of Alzheimer's disease.

3. A method of diagnosing Alzheimer's disease in a patient suspected of having Alzheimer's disease comprising  
25 detecting the presence of an RNA identified by the method of claim 2 in the brain of the patient.

4. A method of detecting the presence of messenger RNA in senile plaques, neurofibrillary tangles, and neuropil threads of brain tissue wherein said messenger RNA encodes a  
30 protein involved in the pathogenesis of Alzheimer's disease comprising:

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- a) isolating single senile plaques in brain tissue by immunocytochemical methods;
- b) identifying the presence of RNA by contacting said senile plaque with a fluorescent dye capable of  
5 intercalating selectively into nucleic acids;
- c) amplifying said RNA; and
- d) hybridizing the amplified RNA product to a known cDNA for a protein involved in the pathogenesis of Alzheimer's disease.

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